Ham-Homebrew Digest   Fri, 8 Apr 94   Volume 94 : Issue   90

Today's Topics:
                        Cheap skate DDS
                 HELP : Apartment Antenna System
                        HomeBrew FT Site
   How phasing SSB Exciters Work (Was: RF and AF speech processors)
                 PIN diodes cause IMD in front end?
                   QRP Magazines like SPRAT, etc.

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 7 Apr 94 16:51:18 GMT
From: hp-cv!hp-pcd!hpcvsnz!tomb@hplabs.hp.com
Subject: Cheap skate DDS
To: ham-homebrew@ucsd.edu

Alvin Nor Mortensen (mortense@matt.ksu.ksu.edu) wrote:
: I'm in the process of building a VHF synthesizer. I had originally
: planned on using DDS to provide the reference to a PLL multiplier.
: Unfortunately the chip (AD7008 -> Great chip!) doesn't seem to be available
: with out a significant lead time. I'm considering just rolling my own
: using the MSB of the phase word as my "DAC". Has anyone tried this?
: Any problems from the spurs ... ? Any thoughts ...?

Lots of spurs lurking about out there on this one. Consider a
clock at 40MHz, used to generate a DDS signal at 10MHz. If it's
exactly 4:1 division, there won't be any jitter on the output.
But if you want 10.000 + or - a little, then most of the time

you divide by 4, but sometimes you divide by 3 or 5, getting to
the MSB. This means that the spectral purity of the output is
very poor.

It may be possible to do something like the fractional-N pll to
provide an incremental analog delay of the square wave edges,
delaying each successive edge by a little more, till you
accumulate a whole clock pulse of delay at which point you
reset the delay, insert one extra pulse, and start the cycle
over again. This would probably be hard to get really right
(good spectral purity).

Date: 07 Apr 1994 11:15:34 GMT
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!agate!howland.reston.ans.net!noc.near.net!
chaos.dac.neu.edu!chaos.dac!dean@network.ucsd.edu
Subject: HELP : Apartment Antenna System
To: ham-homebrew@ucsd.edu

Hi:
     I just got an old SW Rx and would like to set it up w/ an antenna.
I want to receive 80m (and eventually Transmit w I finally get my ticket) on
80m. My 'shack' is at least 25' from any ground (2nd floor apt.) and I have
very little space! The ground is a Steam radiator pipe. I have an MFJ-16010
random wire tuner, if this helps. Could someone help w/ suggestions?

-Dean

Date: 07 Apr 1994 11:07:58 GMT
From: ihnp4.ucsd.edu!usc!sol.ctr.columbia.edu!hamblin.math.byu.edu!news.byu.edu!
news.mtholyoke.edu!nic.umass.edu!noc.near.net!chaos.dac.neu.edu!chaos.dac!
dean@network.ucsd.edu
Subject: HomeBrew FT Site
To: ham-homebrew@ucsd.edu

Hi:
     Is there a favorite FTP site for all the HomeBrewers out there?

-Dean

Date: 7 Apr 94 17:07:05 GMT
From: hp-cv!hp-pcd!hpcvsnz!tomb@hplabs.hp.com
Subject: How phasing SSB Exciters Work (Was: RF and AF speech processors)

To: ham-homebrew@ucsd.edu

Wayne Covington (wayne@fc.hp.com) wrote:

: Another interesting case is to start with a conventional elliptic function
: bandpass response, then proceed to the two networks with flat group delay
: and 90 degree phase difference, keeping the nice elliptic magnitude response.
: The finite jw-axis zeros may well wreak havoc -- with the number of poles
: and zeros (for the same overall tolerances on amplitude and phase errors as
: you have above) increasing significantly.

If you look at this a little differently, it's easy to see that the number
of poles & zeros shouldn't be significantly affected. Come up with a
pair of filters for quadrature phase that you are happy with for
amplitude and phase matching. Add the same zeros and/or poles to
both. Then the amplitude and phase matching will be unchanged. However,
it should be easier to put the frequency shaping outside the quadrature
phase network, since it can then be guaranteed to be identical for both
channels. Leave the quadrature network all-pass; if you wish, shape its
absolute phase to compensate the frequency-shaping filter. At least, that
is how I'd approach it if I were constrained to do it analog.

Date: Wed, 6 Apr 1994 12:36:55 GMT
From: ihnp4.ucsd.edu!sdd.hp.com!sgiblab!wetware!spunky.RedBrick.COM!psinntp!
psinntp!arrl.org!zlau@network.ucsd.edu
Subject: PIN diodes cause IMD in front end?
To: ham-homebrew@ucsd.edu

Roger Traylor (rlt@ssd.intel.com) wrote:

: I am building a front end for a multiband receiver. It will
: consist of two poles of bandpass filtering followed by a grounded
: gate JFET amp, followed by another two poles of filtering.

: My question is: if PIN diodes are used to switch between different sets
: of bandpass filters will they cause increased IMD at typical (not
: pathological) signal levels?

I found that cheap 1N4148 switching diodes can deliver adequate 3rd order
IMD performance at 2 meters--I measured an input intercept in excess of
+56 dBm. Loss wasn't a factor in the application, but its probably
a dB or two. It was biased with about 10 volts and 520 ohms of series
resistance. However, I didn't measure the 2nd order intercept point, which
might be more of a factor on HF receiver than a microwave IF radio.
--
Zack Lau KH6CP/1   2 way QRP WAS

```
                              8 States on 10 GHz
Internet: zlau@arrl.org    10 grids on 2304 MHz


-----------------------------

Date: 07 Apr 1994 11:10:45 GMT
From: ihnp4.ucsd.edu!usc!sol.ctr.columbia.edu!hamblin.math.byu.edu!news.byu.edu!
news.mtholyoke.edu!nic.umass.edu!noc.near.net!chaos.dac.neu.edu!chaos.dac!
dean@network.ucsd.edu
Subject: QRP Magazines like SPRAT, etc.
To: ham-homebrew@ucsd.edu

Hi:
     I recently received a complimentary copy of SPRAT, the journal of the
G-QRP Club. I was great reading! Anyone know of other 'zines' I could try?

-Dean

-----------------------------

End of Ham-Homebrew Digest V94 #90
*****************************
```